

ABSTRACT OF THE DISCLOSURE

A counterpulsation device that operates without the use of compressed air or pressurized gas includes at least one inflatable cuff that is adapted to be placed about a selected portion of the patient's body. A conduit connects the inflatable cuff to an air transfer device so that noncompressed air can be transferred from the air transfer device to the cuff through the conduit to inflate the cuff. The conduit also connects the cuff to the air transfer device so that air can flow through the conduit to deflate the cuff. Another conduit is coupled to the first so that the air in the system can be selectively vented into the atmosphere. A series of valves are placed on the conduit to selectively control whether air is supplied to or withdrawn from the inflatable cuff. The air moving device preferably is a cylinder having a piston that moves through the cylinder to move the air from within the cylinder through the conduit and into or out of the cuff as desired. The piston moves through the cylinder through the use of a linear servo actuator that is controlled by an appropriately programmed electronic controller so that the inflation of the cuff is timed with portions of the patient's EKG signal and peripheral plethysmographic wave.

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